

CLAIMS

We claim:

5                    1.     A method for remotely accessing a service provided by a server in a data communication system in which remote access to the service from a terminal device of a user of the service requires transmission to the server of a valid expendable password at log-on to the service, comprising the steps of:

                         providing the user of the service with a set of expendable passwords for  
10 remotely accessing the service via a network of the data communication system;

                         storing the provided set of expendable passwords on the terminal device of  
the user;

                         setting up a connection via the network to the server from the terminal  
device to enable use of the service by the user from the terminal device;

15                    selecting from the stored set of expendable passwords, automatically by the terminal device at user log-on to the service, one of the stored passwords for use in logging-on to the service;

                         transmitting the selected password to the server by adding the selected  
password to a connection setup signal transmitted from the terminal device to the server via the  
20 network to remotely log-on to the service from the terminal device of the user;

receiving the connection setup signal at the server and identifying, in the connection setup signal, the selected password transmitted from the terminal device of the user; and

validating the identified password at the server for one of allowing and  
5 denying access to the service from the terminal device based on said validating of the password.

2. A method in accordance with claim 1, further comprising the step of registering, at the terminal device, each of the stored passwords when said each password is used to remotely log-on to the service from the terminal device to thereby prevent unintended reuse of  
10 a used password.

3. A method in accordance with claim 1, further comprising the step of updating the expendable passwords stored on the terminal device by transmitting a new set of expendable passwords from the server to the terminal device via the network.  
15

4. A method in accordance with claim 1, further comprising the step of transmitting, from the terminal device to the server via the network, an order for a new set of expendable passwords when each of the passwords stored on the terminal device has been used to remotely log-on to the service from the terminal device.  
20

5. A method in accordance with claim 1,

wherein said step of storing comprises storing on the terminal device of the user a plurality of sets of expendable passwords, each of said sets comprising a plurality of expendable passwords for use in accessing a corresponding one of a plurality of remotely-accessible services available to the user; and

5 wherein said step of selecting comprises selecting a one of said plural sets of stored passwords for use with the corresponding one of the plural services to be accessed by the user and selecting from the selected one of the plural sets a one of the stored passwords of the selected set for use in logging-on to the corresponding one of the plural service.

6. In a data communication system in which a remote user of a service provided by a server on a network of the system is required to transmit to the server a valid expendable password, from a set of expendable passwords provided to the user, in order to obtain remote user-access to the service via the network, the improvement comprising a terminal device connected to the network for use by the user in remotely accessing the service via the network, said terminal device comprising:

storage means for storing at the terminal device the set of expendable passwords provided to the user for use in remotely accessing the service from the terminal device via the network;

selecting means for automatically selecting, from the stored set of  
20 expendable passwords at user log-on to the service, one of the stored passwords for use in remotely logging-on to the service from the terminal device; and

adding means for automatically adding, to a connection setup signal to be transmitted from the terminal device to the server over the network to remotely log-on to the service from the terminal device of the user, the one of the stored passwords selected by said selecting means.

5

7. In the data communication system of claim 6, said terminal device further comprising means for registering, at the terminal device, each of the stored passwords when said each password has been used to remotely log-on to the service from the terminal device to thereby prevent unintended reuse of a used password.

10

8. In the data communication system of claim 6, wherein the server includes means for updating the expendable passwords stored at the terminal device by transmitting a new set of expendable passwords from the server to the terminal device via the network, said terminal device further comprising means for receiving a set of passwords from the server via the network.

15

9. In the data communication system of claim 6, said terminal device further comprising means for automatically ordering, from the server via the network, a new set of expendable passwords for use in logging-on to the service when each of the passwords stored at the terminal device has been used to remotely log-on to the service from the terminal device.

20

10. In the data communication system of claim 6, said storage means of said terminal device comprising means for storing a plurality of sets of expendable passwords, each said stored set of expendable passwords comprising a plurality of expendable passwords for use in remotely accessing a corresponding one of a plurality of services remotely-accessible by the user of the terminal device.

11. In the data communications system of claim 10, said selecting means comprising means for automatically selecting, from a one of the plurality of stored sets of expendable passwords for use with the corresponding one of the plural services to be accessed by the user, a one of the expendable passwords from said one set for use in logging-on to the corresponding one of the plural services.

12. In the data communication system of claim 6, wherein the network comprises a wired telecommunication network, and wherein said terminal device comprises a telephone set in the wired network.

13. In the data communication system of claim 6, wherein the network is a mobile communication network, and wherein said terminal device comprises a mobile station of the mobile network.

14. In the data communication system of claim 13, wherein the network is a GSM network and said terminal device comprises a GSM mobile telephone, said terminal device

further comprising a subscriber identity module that implements said selecting means and said adding means in software on said subscriber identity module.

15. In the data communication system of claim 14, said software on the  
5 subscriber identity module further comprising means for identifying the service by a telephone number entered by the user at the terminal device to access the service, and said adding means further comprising means for appending, to the telephone number, a predetermined number of digits characterizing the one of the stored passwords selected by said selecting means.

10 16. In the data communication system of claim 14, said subscriber identity module further comprising a service directory storing information specifying a plurality of services accessible by the user of the terminal device, service identifier data for each of the accessible services, and password file names to be used in conjunction with remote user access to the plural services.

15 17. In the data communication system of claim 16, said service directory further comprising a pointer for each of the plural services and arranged to point to a first unused password in the set of passwords to be used to attain access to a corresponding service and to be updated to point to a sequentially-next unused password in the set of passwords for the  
20 corresponding service as each stored password is used to access the corresponding service.

18. In the data communication system of claim 14, said software on the subscriber identity module further comprising means for automatically ordering, from the server via the network using the short-message service (SMS-PP service) of the GSM network, a new set of expendable passwords for use in logging-on to the service when each of the passwords  
5 stored at the terminal device has been used to remotely log-on to the service from the terminal device, and for receiving the new set of expendable passwords transmitted from the server using the short-message service.